

P. 11  
P: 1/2

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:	§ Group Art Unit: 2114
Hamilton, et. al.	§
	§
Serial No.: 09/826,608	§ Examiner: Bonzo, Bryce P.
	§
Filed: 4/5/2001	§ Attorney Docket No. AUS920010027US1
	§
Title: System and Method for Collecting	§ International Business Machines Corp.
and Restoring User Environment	§ Intellectual Property Law Dept.
Data Using Removable Storage	§ 11400 Burnet Road
	§ Austin, Texas 78758

DECLARATION UNDER 37 C.F.R. § 1.131

Hon. Commissioner of Patents and Trademarks  
Washington, D.C. 20231

Sir:

Rick Allen Hamilton II declares as follows:

1. I am an Applicant for the patent application entitled "System and Method for Collecting and Restoring User Environment Data Using Removable Storage," Serial No. 09/826,608, filed 4/5/2001, and an inventor of the subject matter described and claimed therein.
2. Prior to March 21, 2001, I completed and reduced to practice, in the United States of America, the invention described and claimed in the subject application, as evidenced by the following:
  - a) I submitted IBM Invention Disclosure Form No. AUS8-2000-1428, attached as Exhibit A hereto, which describes the invention described and claimed in the subject application.

Docket No. AUS9-2001-  
0027-US1

Page 1 of 2

Atty Ref. No. IBM-1009

Hamilton, et. al. - 09/826,608

PATENT

3. Each of the dates deleted from Exhibit A is prior to March 21, 2001.
4. I further declare that all statements made herein of my own knowledge and all statements made on information and belief are believed to be true; and further that these statements are made with the knowledge that willful and false statements and the like so made are punishable by fine or imprisonment or both under § 1001 of Title 18 of United States Code and that such willful and false statements may jeopardize the validity of the above-referenced application and any patent issuing therefrom.

FURTHER DECLARANT SAYETH NOT.



Rick Allen Hamilton II

Date: Apr 12, 2004

# Exhibit “A”



## Disclosure AUS8-2000-1428

Created By: Rick Hamilton Created On: [REDACTED] 08:31:32 AM

Last Modified By: Rick Hamilton Last Modified On: [REDACTED] 10:30:43 AM

\*\*\* IBM Confidential \*\*\*

Required fields are marked with the asterisk (\*) and must be filled in to complete the form.

### Summary

Status	Under Evaluation
Processing Location	AUS
Functional Area	93 - GS (D. Ellix)
Attorney/Patent Professional	David Mims/Austin/IBM
IDT Team	Sue Stewart/Austin/Contr/IBM
Submitted Date	[REDACTED] 11:21:03 AM
Owning Division	GS
PVT Score	To calculate a PVT score, use the 'Calculate PVT' button.
Incentive Program	
Lab	
Technology Code	

### Inventors with Lotus Notes IDs

Inventors: Rick Hamilton/Charlottesville/IBM, Steve Lipton/Dallas/IBM@IBMUS

Inventor Name > denotes primary contact	Inventor Serial	Div/Dept	Manager Serial	Manager Name
Hamilton, Rick A.	355403	23/V8JM	941597	Heath, M. (Morris)
> Lipton, Steven J. (Steve)	028867	23/V6VD	857990	Lopez Jr, Richard (Rick)

### Inventors without Lotus Notes IDs

#### IDT Selection

IDT Team:	Attorney/Patent Professional:
Sue Stewart/Austin/Contr/IBM	David Mims/Austin/IBM

Response Due to IP&L : [REDACTED]

### Main Idea

#### \*Title of disclosure (In English)

Customized Computer System Automated Rebuild Tool accomplished via Directly-Attached Devices

#### \*Idea of disclosure

1. Describe your invention, stating the problem solved (if appropriate), and indicating the advantages of using the invention.

Information Systems' organizations are often faced with heightened challenges in rebuilding computer systems, given the ever-spiraling complexity of systems. In particular, recreating a system environment following a catastrophic failure has become increasingly difficult, due to myriad configuration details that

AUS8-2000-1428 Customized Computer System Automated Rebuild Tool accomplished via Directly-Attached Devices - continued

exist within a user environment. UNIX images, especially, require an awareness of many system parameters, including printer configuration, tty definitions, network interfaces, user id's, and passwords, and a failure to maintain awareness of these parameters may result in the inability to rebuild a system following a catastrophic problems. Furthermore, even if an awareness is maintained of these parameters, the reconstruction of such system specifics can be both time consuming and prone to administrator error. Therefore, a desirable innovation would not only preserve data about these parameters, but would also provide reconstructive services in the aftermath of such a disaster. Finally, a particularly convenient feature would also permit these rebuild operations to occur via directly-attached devices, such as tapes or disks, so that network connectivity is not required for what may be a partially-functional box.

The innovation outlined here solves the problem of post-failure rebuild for many system parameters, without having to take the drastic step of mksysb restoration, using a directly-attached device, e.g., tape or disk, in the manner described above. Specifically, a methodology and a corresponding set of comprehensive scripts have been developed to record many facets of a system's configuration, including printer definitions, tty definitions, network interfaces, user id's, and passwords. Furthermore, the outputs of these scripts can be fed into their reconstructive counterparts, another series of scripts which have the ability to automatically reconstruct lost or destroyed system parameters back onto the "damaged" computer. Thus, if any of the aforementioned parameters are lost via hardware, software, or administrator error, they can be easily reconstructed using the mechanisms laid out here. Note that although this script was written for UNIX-based systems, such as AIX, HP-UX, Solaris, and Linux, the principles here can be extended to other architectures as mentioned above.

The sequence of operation is such that relevant data is captured by the scripts, as outlined below. By definition, the data containing the unique parameters of the computer system, e.g., the users and passwords, the tty definitions, etc, is stored off-board on disparate media, physically separated from the target computer. In the event of a catastrophic error, where elements of the target computer's configuration may be lost via software, hardware, or operator error, the lost parameters can then be rebuilt with minor human intervention. The scripts and their respective roles are as follow:

1. checklist\_rb.scr

purpose: builds a checklist which is used during the building of the new system

2. get\_personality\_rb.scr

purpose: this is the main program which gathers parameter information and stores it on disparate media such as tape or disk. In the process, it creates a variety of files which are used during the build of the new system.

3. restore\_personality\_rb.scr

purpose: this is the main program which restores the parameters to the workstation/server which is retrieved from the media.

4. X11\_restore\_rb.scr

purpose: used for special customizing of X11mwmrc file for X-Windows

5. perms\_reference\_rb.txt

purpose: used to re-set permissions of key files whose permissions might have been "modified" during the capture or restore process.

AUS8-2000-1428 Customized Computer System Automated Rebuild Tool accomplished via Directly-Attached Devices - continued

6. get\_filesystem\_info\_rb.scr

purpose: gathers information about critical filesystems to be used by scripts

The flow, in rough terms, for the capture / preservation process is as follows:

Capture Preparation

- 1) Insert program floppy into floppy drive.
- 2) Make a directory /ibm2.
- 3) Change directory to /ibm2.
- 4) Download the contents of the program floppy to /ibm2 with tar.
- 5) Insert blank tape into the tape drive.

Capture Execution

- 6) Run the data capture program: get\_personality\_rb.scr with the name of the tape drive, /dev/rmt0  
Follow the on-screen instructions.
- 7) If there are errors, the program will display error messages. All errors messages are written to an errorlog.txt file.
- 8) If the error message "Unsuccessful connection to " is displayed, the user can either cancel the entire capture session for all workstations named in wsname.list with a control-break or the user can let the process continue on its own.
- 9) Successful steps also display messages on the screen. For example, this message is critical to the success of the process: "Successful connection to ".
- 10) When the data capture program is complete, then a checklist is printed. This checklist is used whenever the workstation parameters have to be restored.
- 11) Verify the success of the process by viewing the errorlog.txt and the logfile.txt files. In addition, view the contents of each directory created when the program was executed.

Upon system failure, when a restoration of parameters is needed, the process flow corresponds to the following:

Restoration

- 1) Make sure that a replacement workstation, or the repaired workstation, is available with the operating system installed.
- 2) Go to a root user session on the replacement workstation

AUS8-2000-1428 Customized Comp. System Automated Rebuild Tool accomplished via Directly-Attached Devices - continued

- 3) Insert program floppy into floppy drive
- 4) Make a directory /ibm2
- 5) Change directory to /ibm2
- 6) Download the contents of the program floppy to /ibm2 with tar
- 7) Insert the tape created by the data capture program, get\_personality\_rb.scr, into the tape drive
- 8) run the restore program: restore\_personality\_rb.scr
- 9) Status messages will be displayed as each parameter is restored to the replacement workstation.  
For example: " restoring /etc/security/group"
- 10) the user will be prompted to continue at each step and has the option to discontinue the process with a control-break.  
For example: "press enter to continue"
- 11) When finished, the program deletes the temporary files

By providing the means to both capture data about production systems, and to preserve it on physically separated media, IBM is ensuring a heightened readiness of client operations. By providing the means to easily restore such data, thereby recreating the unique system parameters onto each computer following a failure incident, IBM is providing a mechanism to minimize recovery time while mitigating the chance of operator-induced errors. Accordingly, the result is increased customer satisfaction through reduced cost-of-ownership for IBM Global Services clients.

2. How does the invention solve the problem or achieve an advantage, (a description of "the invention", including figures inline as appropriate)?  
Use of this innovation permits a reduced number of full system backups, or "mksysb's" in UNIX parlance, saving storage media, time, and effort. Furthermore, this permits creation and maintenance of one backup to be kept for a family of machines, which can be used for restoration upon any members of that family. After restoration of that common backup, unique parameters can be restored using the process described here!
3. If the same advantage or problem has been identified by others (inside/outside IBM), how have those others solved it and does your solution differ and why is it better?
4. if the invention is implemented in a product or prototype, include technical details, purpose, disclosure details to others and the date of that implementation.

**\*Critical Questions ( Questions 1 - 7 must be answered)**

**Question 1**

On what date was the invention workable? [REDACTED] Please format the date as MM/DD/YYYY  
(Workable means i.e. when you know that your design will solve the problem)

**Question 2**

Is there any planned or actual publication or disclosure of your invention to anyone outside IBM?

☐ Yes  
☒ No

AUS8-2000-1428 Customized Comp. System Automated Rebuild Tool accomplished via Directly-Attached Devices - continued

If yes, Enter the name of each publication or patent and the date published below.

Publication/Patent:

Date Published or Issued:

Are you aware of any publications, products or patents that relate to this invention?

☐ Yes

☒ No

If yes, Enter the name of each publication or patent and the date published below.

Publication/Patent:

Date Published or Issued:

**Question 3**

Has the subject matter of the invention or a product incorporating the invention been sold, used internally in manufacturing, announced for sale, or included in a proposal?

☐ Yes

☒ No

Is a sale, use in manufacturing, product announcement, or proposal planned?

☐ Yes

☒ No

If Yes, identify the product if known and indicate the date or planned date of sale, announcements, or proposal and to whom the sale, announcement or proposal has been or will be made.

Product:

Version/Release:

Code Name:

Date:

To Whom:

If more than one, use cut and paste and append as necessary in the field provided.

**Question 4**

Was the subject matter of your invention or a product incorporating your invention used in public, e.g., outside IBM or in the presence of non-IBMers?

☒ Yes

☐ No

If yes, give a date. Please format the date as MM/DD/YYYY

**Question 5**

Have you ever discussed your invention with others not employed at IBM?

☐ Yes

☒ No

If yes, identify individuals and date discussed. Fill in the text area with the following information, the names of the individuals, the employer, date discussed, under CDA, and CDA #.

**Question 6**

Was the invention, in any way, started or developed under a government contract or project?

☐ Yes

☒ No

☐ Not sure

If Yes, enter the contract number

**Question 7**

Was the invention made in the course of any alliance, joint development or other contract activities?

☐ Yes

☒ No

☐ Not Sure

If Yes, enter the following :Name of Alliance, Contractor or Joint Developer

Contract ID number

Relationship contact name

Relationship contact E-mail

Relationship contact phone

**Question 8**

Have you submitted, or are you aware of, any related disclosure submission?

☐ Yes

☒ No



AUS8-2000-1428 Customized Comp. System Automated Rebuild Tool accomplished via Directly-Attached Devices - continued

If Yes, please provide the title and docket or disclosure number below:

**Question 9**

What type of companies do you expect to compete with inventions of this type? *Check all that apply.*

- ☐ Manufacturers of enterprise servers.
- ☐ Manufacturers of entry servers
- ☐ Manufacturers of workstations
- ☐ Manufacturers of PC's
- ☐ Non-computer manufacturers
- ☒ Developers of operating systems
- ☐ Developers of networking software
- ☒ Developers of application software
- ☒ Integrated solution providers
- ☒ Service providers
- ☐ Other (Please specify below)

**Patent Value Tool (Optional - this may be used by the inventor and attorney to assist with the evaluation)**

(The Patent Value tool can be used by you or the evaluation team to determine the potential licensing value of your invention.)

The Patent Value Tool has not yet been used to calculate a score.

**Post Disclosure Text & Drawings**

Enter any additional information relating to this disclosure below:

(Form Revised 10/01/03)

Apr 12 2004 2:39PM none

APR-12-2004 12:34P FROM:

5123016742

TO: 15123016742

PATENT

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OFFICIAL

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:  
Hamilton, et. al.

Serial No.: 09/826,608

Filed: 4/5/2001

Title: System and Method for Collecting  
and Restoring User Environment  
Data Using Removable Storage

§ Group Art Unit: 2114

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Examiner: Honzo, Bryce P.

Attorney Docket No. AUS920010027US1

International Business Machines Corp.

Intellectual Property Law Dept.

11400 Burnet Road

Austin, Texas 78758

DECLARATION UNDER 37 C.F.R. § 1.131

Hon. Commissioner of Patents and Trademarks  
Washington, D.C. 20231

Sir:

Steven Jay Lipton declares as follows:

1. I am an Applicant for the patent application entitled "System and Method for Collecting and Restoring User Environment Data Using Removable Storage," Serial No. 09/826,608, filed 4/5/2001, and an inventor of the subject matter described and claimed therein.
2. Prior to March 21, 2001, I completed and reduced to practice, in the United States of America, the invention described and claimed in the subject application, as evidenced by the following:
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Page 1 of 2

Atty Ref. No. IBM-1009

Hamilton, et. al. - 09/826,608

PATENT

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FURTHER DECLARANT SAYETH NOT.

Steven Jay Lipton  
Steven Jay Lipton

Date: 4/12/2004

Docket No. AUS9-2001-  
0027-US1

Page 2 of 2

Atty Ref. No. IBM-1009

Hamilton, et. al. - 09/826,608

# Exhibit “A”



## Disclosure AUS8-2000-1428

Created By: Rick Hamilton Created On: [REDACTED] 08:31:32 AM

Last Modified By: Rick Hamilton Last Modified On: [REDACTED] 10:30:43 AM

\*\*\* IBM Confidential \*\*\*

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### Inventors with Lotus Notes IDs

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Inventor Name > denotes primary contact	Inventor Serial	Div/Dept	Manager Serial	Manager Name
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> Lipton, Steven J. (Steve)	028867	23/V6VD	857990	Lopez Jr, Richard (Rick)

### Inventors without Lotus Notes IDs

#### IDT Selection

IDT Team: Sue Stewart/Austin/Contr/IBM	Attorney/Patent Professional: David Mims/Austin/IBM
---	--

Response Due to IP&L : [REDACTED]

### Main Idea

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Customized Computer System Automated Rebuild Tool accomplished via Directly-Attached Devices

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AUS8-2000-1428 Customized Computer System Automated Rebuild Tool accomplished via Directly-Attached Devices - continued

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4. X11\_restore\_rb.scr  
purpose: used for special customizing of X11mwmrc file for X-Windows
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AUS8-2000-1428 Customized Computer System Automated Rebuild Tool accomplished via Directly-Attached Devices - continued

6. get\_filesystem\_info\_rb.scr

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Upon system failure, when a restoration of parameters is needed, the process flow corresponds to the following:

Restoration

- 1) Make sure that a replacement workstation, or the repaired workstation, is available with the operating system installed.
- 2) Go to a root user session on the replacement workstation

AUS8-2000-1428 Customized Computer System Automated Rebuild Tool accomplished via Locally-Attached Devices - continued

- 3) Insert program floppy into floppy drive
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- 5) Change directory to /ibm2
- 6) Download the contents of the program floppy to /ibm2 with tar
- 7) Insert the tape created by the data capture program, get\_personality\_rb.scr, into the tape drive
- 8) run the restore program: restore\_personality\_rb.scr
- 9) Status messages will be displayed as each parameter is restored to the replacement workstation.  
For example: "restoring /etc/security/group"
- 10) the user will be prompted to continue at each step and has the option to discontinue the process with a control-break.  
For example: "press enter to continue"
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By providing the means to both capture data about production systems, and to preserve it on physically separated media, IBM is ensuring a heightened readiness of client operations. By providing the means to easily restore such data, thereby recreating the unique system parameters onto each computer following a failure incident, IBM is providing a mechanism to minimize recovery time while mitigating the chance of operator-induced errors. Accordingly, the result is increased customer satisfaction through reduced cost-of-ownership for IBM Global Services clients.

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3. If the same advantage or problem has been identified by others (inside/outside IBM), how have those others solved it and does your solution differ and why is it better?
4. If the invention is implemented in a product or prototype, include technical details, purpose, disclosure details to others and the date of that implementation.

**\*Critical Questions ( Questions 1 - 7 must be answered)**

**Question 1**

On what date was the invention workable?  Please format the date as MM/DD/YYYY  
(Workable means i.e. when you know that your design will solve the problem)

**Question 2**

Is there any planned or actual publication or disclosure of your invention to anyone outside IBM?

☐ Yes  
☒ No



AUS8-2000-1428 Customized Comp. System Automated Rebuild Tool accomplished via Directly-Attached Devices - continued

If yes, Enter the name of each publication or patent and the date published below.

Publication/Patent:

Date Published or Issued:

Are you aware of any publications, products or patents that relate to this invention?

☐ Yes  
☒ No

If yes, Enter the name of each publication or patent and the date published below.

Publication/Patent:

Date Published or Issued:

**Question 3**

Has the subject matter of the invention or a product incorporating the invention been sold, used internally in manufacturing, announced for sale, or included in a proposal?

☐ Yes  
☒ No

Is a sale, use in manufacturing, product announcement, or proposal planned?

☐ Yes  
☒ No

If Yes, identify the product if known and indicate the date or planned date of sale, announcements, or proposal and to whom the sale, announcement or proposal has been or will be made.

Product:

Version/Release:

Code Name:

Date:

To Whom:

If more than one, use cut and paste and append as necessary in the field provided.

**Question 4**

Was the subject matter of your invention or a product incorporating your invention used in public, e.g., outside IBM or in the presence of non-IBMs?

☒ Yes  
☐ No

If yes, give a date. Please format the date as MM/DD/YYYY

**Question 5**

Have you ever discussed your invention with others not employed at IBM?

☐ Yes  
☒ No

If yes, identify individuals and date discussed. Fill in the text area with the following information, the names of the individuals, the employer, date discussed, under CDA, and CDA #.

**Question 6**

Was the invention, in any way, started or developed under a government contract or project?

☐ Yes  
☒ No  
☐ Not sure

If Yes, enter the contract number

**Question 7**

Was the invention made in the course of any alliance, joint development or other contract activities?

☐ Yes  
☒ No  
☐ Not Sure

If Yes, enter the following :Name of Alliance, Contractor or Joint Developer

Contract ID number

Relationship contact name

Relationship contact E-mail

Relationship contact phone

**Question 8**

Have you submitted, or are you aware of, any related disclosure submission?

☐ Yes  
☒ No

AUS8-2000-1428 Customized Comp. System Automated Rebuild Tool accomplished via. Directly-Attached Devices - continued

If Yes, please provide the title and docket or disclosure number below:

**Question 9**

What type of companies do you expect to compete with inventions of this type? *Check all that apply.*

- ☐ Manufacturers of enterprise servers
- ☐ Manufacturers of entry servers
- ☐ Manufacturers of workstations
- ☐ Manufacturers of PC's
- ☐ Non-computer manufacturers
- ☒ Developers of operating systems
- ☐ Developers of networking software
- ☒ Developers of application software
- ☒ Integrated solution providers
- ☒ Service providers
- ☐ Other (Please specify below)

**Patent Value Tool (Optional - this may be used by the inventor and attorney to assist with the evaluation)**

(The Patent Value tool can be used by you or the evaluation team to determine the potential licensing value of your invention.)

The Patent Value Tool has not yet been used to calculate a score.

**Post Disclosure Text & Drawings**

Enter any additional information relating to this disclosure below:

(Form Revised [REDACTED])